Effectiveness of Yogic practices on Occupational Stress, mood and Back pain of banking sector employees

By
Shubhi Taneja
Registration no: PH2022-303

Supervisor: Dr. Rajkumar Sharma
Associate professor, LNIPE

Co-Supervisor: Dr. Indu Sharma
Assistant professor, MDNIY

A
Synopsis
Submitted to

Department of Yogic Science
Lakshmibai National Institute of Physical Education,
Gwalior (M.P.), INDIA

For the award of the degree of
Doctor of Philosophy in Yogic Science

Abstract:

This study investigates the impact of yogic practices on occupational stress, mood, back pain and vital signs among banking sector employees. Recognizing the high-stress environment and sedentary nature of banking jobs, the research aims to assess whether regular yoga interventions can serve as an effective strategy for enhancing employee well-being.

Methodology: A quasi-experimental design will be employed, involving 100 participants from selected public and private banks. Participants will be divided into control and experimental groups. The experimental group will engage in a structured yoga program over a period of 12 weeks. Pre- and post-intervention assessments will be conducted using standardized tools: the OSI-Occupational Stress Index, RMDQ-Roland Morris Disability Questionnaire and PANAS-X-Positive and Negative Affect Schedule-Expanded.

Expected outcome: Post-intervention analysis is expected to reveal, a significant reduction in occupational stress levels, improved mood states, a notable decrease in back pain intensity and improved vital signs, compared to the control group. The study may suggest that incorporating yogic practices into the routine of banking professionals can effectively mitigate occupational stress, enhance mood, and alleviate back pain.

Keywords: Yoga, Occupational Stress, Mood Enhancement, Back Pain, Banking Sector, Employee Wellness, Yoga therapy

DEPARTMENT OF YOGIC SCIENCE

CERTIFICATE

I hereby declare that the synopsis **" Effectiveness of Yogic practices on Occupational Stress, mood and Back pain of banking sector employees"** being submitted in partial fulfillment of the requirement for the degree of Doctor of Philosophy in Yoga under the Department of Yogic Sciences, Lakshmibai National Institute of Physical Education (LNIPE), Gwalior, Madhya Pradesh, India during the academic year 2022-2023.

It is a bonafide record of original work carried out under the supervision of Dr. Rajkumar Sharma and the co-supervision of Dr. Indu Sharma has not been submitted in full or part to any other university or institute for a degree or diploma.

(Shubhi Taneja)

PH2022-303

Dr. Rajkumar Sharma

Associate Professor,

LNIPE, Gwalior

(Chairman, DRC)

TABLE OF CONTENTS

S. NO.	TOPIC	PAGE NO.
1.	Introduction Aims and objectives Research question Hypotheses Delimitations Significance of the study	1-5
2.	Review of literature	6-8
3.	Methodology Selection of subjects Selection of variables Criterion measure Administration of tests Collection of data Statistical analysis	9-11
4.	Expected outcome	12
5.	References	13-14

INTRODUCTION

Occupational stress is defined as detrimental physical and emotional responses that arise when job requirements do not align with an employee's resources, needs, or capabilities, resulting in poor mental and physical health.Occupational stress is induced by a variety of causes, including occupational, social, and individual factors.Some of the most common occupational hazards reported by nurses, police officers, school teachers, banking sector employees, and doctors include low back pain, musculoskeletal disorders, hypertension, obesity, diabetes, depression, cardiovascular disorders, psychosomatic and mental disorders, and digestive issues. However, stress is widespread in all organizations, regardless of hierarchy(Verma et al., 2020).

In the post-globalization age, increasing competition among banks caused them to become more customer-focused. Bank workers play an important role in providing customer-oriented services. Excellent services delivered and offered by personnel can foster a positive perspective and long-term image in the eyes of bank clients. The success of every organization is primarily dependent on its people resources. This holds true for banks as well. Employees in the bank are key assets to the organization. Improving employee health and well-being is one method that any firm can gain a competitive advantage. Employees' health status has a direct impact on their work behavior, attendance, and performance.

Employees in banks face a variety of physical demands and prolonged sitting positions, which can contribute to a variety of health issues. The sedentary lifestyle of bank personnel is responsible for many ailments, particularly noncommunicable diseases. Increasing competitiveness in the banking sector causes increasing mental tension among employees, which is again accountable for different health concerns(Prajapati et al., 2015).

Several training tactics have been employed to reduce employee stress, including counselling, communication training, and relaxation exercises. Similarly, the Transcendental Meditation technique and health education have a good influence on health and stress reduction. To cope with occupational stress, however, simple, cost-effective, and low-risk measures should be utilized. Yoga practices have been shown to be useful in reducing stress and associated symptoms such as depression, anxiety, and psychosomatic disorders in a variety of populations.Yoga is an ancient traditional Indian practice that improves physical, mental, and spiritual well-being in an individual. Yoga primarily consists of asanas (physical postures) and pranayama (controlled breathing), which leads to relaxation of the mind and body(Verma et al., 2020).

Yoga activities were found to be useful in persons working in high-stress environments.As a result, incorporating yoga practices into the workplace may prove to be a convenient, practical, cost-effective, and extremely useful alternative for reducing the negative impacts of professional stress on individuals. Previous research on yoga's impact on work-related stress in education has primarily focused on college students, healthy adults, and teachers.However, no research has been undertaken so far among banking sector employees.

Prolonged activation of the hypothalamic-pituitary-adrenal system is thought to have a negative impact on brain function. Neuroendocrine studies imply that greater cortisol concentrations in the brain lead to cognitive decline as we age. Such mind body techniques, like yoga have shown to improve stress levels by restoring the body's sympathetic-parasympathetic balance. Thus, helps in improving wellbeing and relieving stress(Gothe et al., 2016).

Positive affect (PA) measures how energetic, enthusiastic, alert, active, and alive one feels.PA has been associated to improved work-life balance, job satisfaction, social support, and effective coping techniques. PA has also been linked to better citizenship behaviour. People with high PA have been shown to be more aware, and they may better regulate their affective experiences by generating and maintaining pleasant emotions.Yoga is widely acknowledged for its physical and psychological benefits.Yoga sessions have been shown to improve physical activity while also decreasing negative affect(Dwivedi et al., 2015a).

Low back pain (LBP) is a musculoskeletal condition hypothesized to be caused by chronic overuse and acute damage to the lumbar spine's muscles, ligaments, tendons, intervertebral discs, nerves, or vertebrae. LBP is one of the most common musculoskeletal illnesses, with an estimated lifetime prevalence of up to 90%.In the working-age population, LBP has higher medical costs than coronary heart disease, respiratory infections, and diabetes combined. Sitting is frequent in many of today's service-related industries.According to research, extended sitting reduces lumbar lordosis while increasing muscle activity, intradiscal pressure, and pressure on the ischium. Prolonged flexion during sitting has shown to cause a redistribution of the nucleus within the annulus. These factors may result in disc degeneration, herniation, or rupture, which could contribute to LBP(Roffey et al., 2010).

Individuals with CLBP have poor core stability, abnormal lumbopelvic posture, muscle imbalance, and incorrect movement. Posture becomes mechanically defective with an imbalance of tight and weak muscles, which could benefit from activity such as yoga that targets both flexibility and strength(Colgrove et al., 2019).

Aim and Objectives

Aim of the study:To study the effectiveness of yogic intervention on occupational stress, mood, back pain and vital signs of banking sector employees

Objectivesofthestudy:The study was conceptualized with following objectives:

(a) To study the effect of Yogic intervention on Occupational stress in banking sector employees.

(b) To study the effect of Yogic intervention on Mood in banking sector employees.

(c) To study the effect of Yogic intervention on Vital signs (Respiratory rate, heart rate, Blood pressure) in banking sector employees.

(d) To study the effect of Yogic intervention on Back pain in banking sector employees.

Research question

Is yogic intervention effective on occupational stress, mood, back pain and vital signs among banking sector employees?

Hypotheses

1. There will be a statistically significant difference in the levels of occupational stress in the experimental group between the pre- and post-intervention assessments.
2. There will be a statistically significant difference in mood levels in the experimental group between the pre- and post-intervention assessments.
3. There will be a statistically significant difference in back pain scores in the experimental group between the pre- and post-intervention assessments
4. There will be a statistically significant difference in vital signs scores in the experimental group between the pre- and post-intervention assessments
5. There will be a statistically significant difference in post-test occupational stress levels between the experimental group and the control group.
6. There will be a statistically significant difference in post-test mood levels between the experimental group and the control group.
7. There will be a statistically significant difference in post-test back pain scores between the experimental group and the control group
8. There will be a statistically significant difference in post-test vital signs scores between the experimental group and the control group

Delimitations

- The study will be delimited to 100 banking sector employees.
- The study will be delimited to age group 25 to 50 years.
- The study will also be delimited to 12-weeks.
- The study will be delimited to following variables:
  Independent variables: Yogic intervention
  Dependent variables: Occupational stress, Mood, Back pain and Vital signs (Blood pressure, Heart rate, Respiratory rate)

Significance of the study

1. The Study will be significant in assessing the occupational stress, includingstressors suchas overload, role insufficiency,and roles of responsibilitiesandphysicalenvironmentof bank employees.
2. The Study will be able to explore the effect of yogic intervention on stress management.
3. The findings of this study may be useful for identification of moods/feelings that the employees are coping with, and would be able to suggest the management of the same through effective and feasible ways such as yoga.
4. This research investigation will definitely add to the existing literature of research in health and yogic science.

REVIEW OF RELATED LITERATURE

(Cocchiara et al., 2019)The purpose of this systematic review is to analyze and summarize the current knowledge regarding the use of yoga to manage and prevent stress and burnout in healthcare workers. In February 2017, a literature search was conducted using the databases Medline (PubMed) and Scopus. Studies that addressed this topic were included. Eleven articles met the inclusion criteria. Seven studies were clinical trials that analyzed yoga interventions and evaluated effectiveness by gauging stress levels, sleep quality and quality of life. A study on Chinese nurses showed statistical improvement in stress levels following a six-month yoga program ($\chi 2 = 16.449$; $p < 0.001$). A population of medical students showed improvement in self-regulation values after an 11-week yoga program (from 3.49 to 3.58; $p = 0.04$) and in self-compassion values (from 2.88 to 3.25; $p = 0.04$). Four of the included articles were observational studies: They described the factors that cause stress in the work environment and highlighted that healthcare workers believe it is possible to benefit from improved physical, emotional and mental health related to yoga activity. According to the literature, yoga appears to be effective in the management of stress in healthcare workers, but it is necessary to implement methodologically relevant studies to attribute significance to such evidence.

(Grensman et al., 2018)Randomized controlled trial, blinded, in ninety-four primary health care patients, block randomized to TY, MBCT or CBT (active control) between September 2007 and November 2009. Patients in the Stockholm metropolitan area, Sweden, were aged 18-65 years and were on 50%-100% sick leave. A group treatment for 20 weeks, three hours per week, with homework four hours per week. HRQoL was measured by the SWED-QUAL questionnaire. It covers aspects of physical and emotional well-being, cognitive function, sleep, general health and social and sexual functioning. 26 patients in the TY (21 women), and 27 patients in both the MBCT (24 women) and in the CBT (25 women), were analyzed. Ten subscales in TY and seven subscales in MBCT and CBT showed improvements, $p < 0.05$, in several of the main domains affected in burnout, e.g. emotional well-being, physical well-being, cognitive function and sleep. The median improvement ranged from 0 to 27 points in TY, from 4 to 25 points in CBT and from 0 to 25 points in MBCT. The effect size was mainly medium or large. Comparison of treatments showed no statistical differences, but better effect (small) of both TY and MBCT compared to CBT. When comparing the effect of TY and MBCT, both showed a better effect (small) in two subscales each. A 20-week group treatment with TY, CBT or MBCT had equal effects on

HRQoL, and particularly on main domains affected in burnout. This indicates that TY, MBCT and CBT can be used as both treatment and prevention, to improve HRQoL in patients on sick leave because of burnout, reducing the risk of future morbidity.

(Dwivedi et al., 2015b)The current study looked at how working professionals engaged in CWB reacted to PA and hostility while they practiced mindfulness, which is cultivated through yoga. Over the course of ten weeks, a pre-test, post-test randomised controlled design was employed with a study sample consisting of an 80-person yoga group and an 80-person control group. The yoga group was taught a module that includes asanas, pranayama, meditation, and yogic ideas. The control group received instruction in management theory and mild to moderate physical activity. Aggression and PA scores were measured for assessment at the pre- and post-intervention stages. Between the two groups, there was no discernible difference in the variable scores at baseline. In comparison to the control group, the Yoga group demonstrated a statistically significant ($P < 0.001$) decrease in aggressiveness and a significant ($P < 0.001$) improvement in PA, according to postintervention results.At the conclusion of the intervention, the Yoga group scored much higher for PA and significantly lower for aggressiveness than the control group.

(Tilbrook et al., 2011) study's primary goal was to evaluate the efficacy of yoga vs standard medical therapy for treating persistent or recurrent low back pain. From April 2007 to March 2010, a computer-generated randomisation was used in a parallel-group, randomised, controlled study. A postal questionnaire was used to evaluate the results. The settings were 13 non-NHS premises located throughout the United Kingdom. The patients included 13 adults with recurring or chronic low back pain. A pamphlet about back pain education was given to each participant. For three months, a 12-class, progressively more advanced yoga program taught by twelve teachers was made available to the intervention group. Pain, pain self-efficacy, and overall health measures at 3, 6, and 12 months (secondary outcomes); scores on the Roland-Morris Disability Questionnaire (RMDQ) at 3 (main outcome), 6 (secondary outcome), and 12 (secondary outcomes) months. Of the 93 patients (60%) who were offered yoga, at least three attended the first six sessions and the last three sessions. At 3, 6, and 12 months, the back function of the yoga group was superior to that of the normal care group. In the yoga group, the adjusted mean RMDQ score decreased by 2.17 points at three months, 1.48 points at six months, and 1.57 points at twelve months. At three, six, and twelve months, back pain and overall health ratings

were comparable between the yoga and standard care groups; at three and six months, but not at twelve months, the yoga group's pain self-efficacy scores were higher. Out of 156 people who practiced yoga, 12 reported adverse events, primarily greater pain, compared to 157 participants who received normal care. According to the study's findings, providing a 12-week yoga program to those with recurring or chronic low back pain improved spine function more than standard medical therapy.

(Krishna et al., 2014)In this study, the effects of a 12-week yoga therapy on blood pressure, heart rate, heart rate variability, and rate pressure product (RPP) were evaluated.Out of 130 heart failure patients recruited for the study, 65 patients were randomly selected to receive 12-week yoga therapy along with standard medical therapy (yoga group). Other patients (n=65) received only standard medical therapy (control group). Variables assessed before and after 12 weeks were Heart rate, blood pressure, cardiac autonomic function (by short-term heart-rate variability analysis) and myocardial oxygen consumption (by RPP). 44 patients participated in the yoga intervention and 48 patients were in control group.There was a significant decrease in heart rate, blood pressure and RPP in yoga group compared to control group. And, LFnu and LF-HF ratio also decreased significantly whereas HFnu increased significantly in yoga group as compared to control group.

METHODOLOGY

Selectionofsubjects

For this study the subjects will be selected from selected public and private sector banks. One hundred bank employees will be selected for the study. The subjects will be divided into two groups of fifty subjects each.

Theinclusioncriteriawillbe:

- Bothmaleandfemaleemployeeswillbeincluded.
- Employees who have not been practicing yoga for last 3 months.
- Employees who are able to perform the practices comfortably.

Selectionofvariables

Independent variables:Yogic Intervention

Dependent variables: Occupational stress, Mood, Lower back pain and Vital signs (Respiratory rate, heart rate, Blood pressure)

Criterionmeasure

The following are criterion measures chosen for testing the hypothesis inthe study:

- **OSI** The Occupational Stress Index assesses employees' stress in various dimensions of their job life. 46 items were selected to constitute the final OSI, which were & related todifferent stress — over load, role ambiguity, role conflict, group pressure,responsibility, under-participation, powerlessness, poor peer relationshipetc. The items were on a 5-point Likert type Scale ranging from strongly disapprove to strongly approve.(Srivastava & Singh, 2017)
- **RMDQ**(Roland Morris Disability Questionnaire): consists of 24 statements describing activity limitations stemming from back pain specifically, such as self-care and physical limitations.
- **PANAS-X** (Positive and Negative Affect Schedule-Expanded by David Watson and Lee Anna Clark): Used to assess specific emotional states, with 60 items. In addition to the 2 original higher order scales (mood descriptors), it also measures 11 specific affects: Fear, Sadness, Guilt, Hostility, Shyness, Fatigue, Surprise, Joviality, Self-Assurance,

Attentiveness, and Serenity.

- **Blood pressure** Digital blood pressure monitor
- **Heart rate**Pulse oximeter
- **Respiratory rate**Stop watch

Administrationoftest

- OSI (Occupational Stress Index): Self administration by subjects in presence of researcher.
- RMDQ (Roland Morris Disability Questionnaire): Self administration by subjects in presence of researcher.
- PANAS-X (Positive and Negative Affect Schedule-Expanded): Self administration by subjects in presence of researcher. Eachquestionnairewillbeexplainedtoeachsubjectand allthenecessary instructions willbe given. After that the subject will be askedtofillthequestionnairebyreadingeachstatementcarefully.
- Blood pressure: Procedure: - Insert the air tube from the cuff into the air jack; Switch the button to ON, When the machine has finished its self-test the heart symbol indicates the machine is ready. Wrap the cuff around the bare arm so that the centre of the bladder is positioned 2-3cms above the elbow joint on the inside of the arm.If possible, lay the arm out with the palm of the hand facing upwards and the cuff at approximately heart level. Press the start button. When a target value is reached, air is released and the value in the display counts downwards. When the machine no longer detects the pulse and whilst the cuff pressure is dropping the systolic and diastolic blood pressures are displayed. When all the air has been released the heart symbol appears in the display and the pulse and blood pressure are displayed alternately for about 5 minutes.
- Heart rate: Pulse oximeter will be used, that will fit on the finger of the subject and will quickly show the heart rate.
- Respiratory rate: Respiratory rate will be observed while the subject is sitting up in a chair. Breathing rate will be observed by counting the number of times, the chest or abdomen rises over the course of 1 minute. Record this number.

Collectionofdata

- Data will be collected from different public and private sector banking employees at two

stages that is at Baseline and after 12 weeks completion of intervention.

- Data will be collected for both experimental and control group simultaneously.

Statisticalanalysis

- To characterize the data of the following variables: Occupational stress, Mood, back pain, and Vital signs (Blood pressure, Heart rate, Respiratory rate) of banking sector employees, Descriptive statistics will be used.
- To adjust the posttest scores by accounting for any initial differences in pretest scores between the groups, for the following variables: Occupational stress, Mood, back pain, and Vital signs (Blood pressure, Heart rate, Respiratory rate), ANCOVA test will be used.

EXPECTED OUTCOME

It is anticipated that the post-intervention analysis will demonstrate significant positive changes among participants in the intervention group compared to the control group. Specifically, the expected outcomes include:

1. Reduction in Occupational Stress: Participants are expected to exhibit a statistically significant decrease in occupational stress levels, suggesting that the intervention effectively mitigates work-related psychological strain.

2. Improvement in Mood States: The intervention is anticipated to result in improved mood profiles, reflected by reductions in negative mood indicators and enhancements in positive mood states.

3. Decrease in Back Pain Intensity: A notable reduction in the intensity and frequency of back pain symptoms is expected, indicating the potential therapeutic benefits of the intervention on musculoskeletal discomfort.

4. Improved Vital Signs: Positive changes in physiological health markerssuch as blood pressure, heart rate, and respiratory rateare expected, further supporting the intervention's efficacy in enhancing overall well-being.

These outcomes, if achieved, would underscore the value of the intervention in promoting both psychological and physical health among occupational populations.

References:

Cocchiara, R. A., Peruzzo, M., Mannocci, A., Ottolenghi, L., Villari, P., Polimeni, A., Guerra, F., & La Torre, G. (2019). The Use of Yoga to Manage Stress and Burnout in Healthcare Workers: A Systematic Review. *Journal of Clinical Medicine*, *8*(3), 284. https://doi.org/10.3390/jcm8030284

Colgrove, Y., Gravino-Dunn, N., Dinyer, S., Sis, E., Heier, A., & Sharma, N. (2019). Physical and physiological effects of yoga for an underserved population with chronic low back pain. *International Journal of Yoga*, *12*(3), 252. https://doi.org/10.4103/ijoy.IJOY_78_18

Dwivedi, U., Kumari, S., Akhilesh, K., & Nagendra, H. (2015a). Well-being at workplace through mindfulness: Influence of Yoga practice on positive affect and aggression. *AYU (An International Quarterly Journal of Research in Ayurveda)*, *36*(4), 375. https://doi.org/10.4103/0974-8520.190693

Dwivedi, U., Kumari, S., Akhilesh, K., & Nagendra, H. (2015b). Well-being at workplace through mindfulness: Influence of Yoga practice on positive affect and aggression. *AYU (An International Quarterly Journal of Research in Ayurveda)*, *36*(4), 375. https://doi.org/10.4103/0974-8520.190693

Grensman, A., Acharya, B. D., Wändell, P., Nilsson, G. H., Falkenberg, T., Sundin, Ö., & Werner, S. (2018). Effect of traditional yoga, mindfulness–based cognitive therapy, and cognitive behavioral therapy, on health related quality of life: A randomized controlled trial on patients on sick leave because of burnout. *BMC Complementary and Alternative Medicine*, *18*(1), 80. https://doi.org/10.1186/s12906-018-2141-9

Krishna, B. H., Pal, P., G K, P., J, B., E, J., Y, S., M G, S., & G S, G. (2014). Effect of yoga therapy on heart rate, blood pressure and cardiac autonomic function in heart failure.

Journal of Clinical and Diagnostic Research: JCDR, 8(1), 14–16. https://doi.org/10.7860/JCDR/2014/7844.3983

Roffey, D. M., Wai, E. K., Bishop, P., Kwon, B. K., & Dagenais, S. (2010). Causal assessment of occupational sitting and low back pain: Results of a systematic review. *The Spine Journal, 10*(3), 252–261. https://doi.org/10.1016/j.spinee.2009.12.005

Srivastava, A. K., & Singh, A. P. (2017). *Occupational Stress Index* [Dataset]. https://doi.org/10.1037/t53532-000

Tilbrook, H. E., Cox, H., Hewitt, C. E., Kang'ombe, A. R., Chuang, L.-H., Jayakody, S., Aplin, J. D., Semlyen, A., Trewhela, A., Watt, I., & Torgerson, D. J. (2011). Yoga for chronic low back pain: A randomized trial. *Annals of Internal Medicine, 155*(9), 569–578. https://doi.org/10.7326/0003-4819-155-9-201111010-00003

Verma, A., Shete, S. U., & Doddoli, G. (2020). Impact of residential yoga training on occupational stress and health promotion in principals. *Journal of Education and Health Promotion, 9*, 30. https://doi.org/10.4103/jehp.jehp_394_19